

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Ira J. Schultz on 14 September 2009.

2. The application has been amended as follows:

24. (Currently Amended) Ultrasound welding device comprising:

component parts producing or transmitting oscillations, the device comprising:

a converter comprising a plurality of piezo-ceramic discs which can be placed in oscillation, the plurality of discs being placed between a pin and a nut, and being tensioned by a first bolt element,

a sonotrode,

~~optionally, a booster placed between the converter and the sonotrode, and a backing electrode associated with the sonotrode;~~

a space between the sonotrode and the backing electrode for placing compressible, weldable parts;

and a piezo-ceramic sensor associated with at least one of the component parts, and being constructed and arranged for capturing amplitude of oscillation of the associated component part;

wherein the first bolt element comprises a tapped blind hole starting an end face running from the nut and having an internal threading into which a second bolt is screwed, via which the piezo-ceramic sensor is tensioned with respect to the first bolt element.

30. (Currently Amended) A method for measuring and/or regulating the amplitude of a converter for an ultrasonic welding machine which comprises:

component parts producing or transmitting oscillations, the device comprising:

a converter comprising a plurality of piezo-ceramic discs which can be placed in oscillation, the plurality of discs being placed between a pin and a nut, and being tensioned by a first bolt element,

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a sonotrode, and
~~optionally, a booster placed between the converter and the sonotrode, and~~
a backing electrode associated with the sonotrode;
a space between the sonotrode and the backing electrode for placing compressible, weldable parts; and
a piezo-ceramic sensor associated with at least one of the component parts, and being constructed and arranged for capturing amplitude of oscillation of the associated component part;
wherein the first bolt element comprises a tapped blind hole starting an end face running from the nut and having an internal threading into which a second bolt is screwed, via which the piezo-ceramic sensor is tensioned with respect to the first bolt element;
a control circuit connected to the converter for sending thereto a high frequency voltage or current to produce ultrasound oscillations;
comprising the steps of:
comparing actual signals corresponding to oscillation amplitudes determined by the piezo-ceramic sensor with expected signals in the control circuit or a measuring and monitoring device, and
varying an output signal of the control circuit as a function of deviations between the actual and expected signals, by means of which output signal the oscillations are produced.

35. (new) Ultrasound welding device according to claim 24 further comprising a booster placed between the converter and the sonotrode.

36. (new) A method according to claim 30 wherein the component parts producing or transmitting oscillations of ultrasonic welding machine further comprises a booster placed between the converter and the sonotrode.

REASONS FOR ALLOWANCE

3. The following is an examiner's statement of reasons for allowance: The prior art of record fails to teach and/or suggest an ultrasound welding device comprising: component parts producing or transmitting oscillations, the device comprising: a converter comprising a plurality of piezo-ceramic discs which can be placed in oscillation, the plurality of discs being placed

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between a pin and a nut, and being tensioned by a first bolt element, a sonotrode, optionally, a booster placed between the converter and the sonotrode, and a backing electrode associated with the sonotrode; a space between the sonotrode and the backing electrode for placing compressible, weldable parts; and a piezo-ceramic sensor associated with at least one of the component parts, and being constructed and arranged for capturing amplitude of oscillation of the associated component part; especially wherein the first bolt element comprises a tapped blind hole starting an end face running from the nut and having an internal threading into which a second bolt is screwed, via which the piezo-ceramic sensor is tensioned with respect to the first bolt element.

The prior art of record fails to teach and/or suggest a converter for an ultrasound welding device, which can be placed into oscillation having an amplitude with a high frequency voltage or a high frequency current, the converter comprising a plurality of first piezo-ceramic discs which can be place in oscillation and which are placed between a pin and a nut, and which are tensioned between the pin and the nut by a first bolt element, the first bolt element comprising a tapped blind hole starting at an end face running from the nut, with an internal threading into which a second bolt is screwed, via which a piezo-ceramic sensor capturing the amplitude is tensioned with respect to the first bolt element.

The prior art of record also fails to teach and/or suggest a method for measuring and/or regulating the amplitude of a converter for an ultrasonic welding machine which comprises: component parts producing or transmitting oscillations, the device comprising: a converter comprising a plurality of piezo-ceramic discs which can be placed in oscillation, the plurality of discs being placed between a pin and a nut, and being tensioned by a first bolt element, a sonotrode, optionally, a booster placed between the converter and the sonotrode, and a backing electrode associated with the sonotrode; a space between the sonotrode and the backing electrode for placing compressible, weldable parts; and a piezo-ceramic sensor associated with at least one of the component parts, and being constructed and arranged for capturing amplitude of oscillation of the associated component part; especially wherein the first bolt element comprises a tapped blind hole starting an end face running from the nut and having an internal threading into which a second bolt is screwed, via which the piezo-ceramic sensor is tensioned with respect to the first bolt element; a control circuit connected to the converter for sending thereto a high frequency voltage or current to produce ultrasound oscillations; comprising the steps of: comparing actual signals corresponding to oscillation amplitudes

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determined by the piezo-ceramic sensor with expected signals in the control circuit or a measuring and monitoring device, and varying an output signal of the control circuit as a function of deviations between the actual and expected signals, by means of which output signal the oscillations are produced.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROSE M. MILLER whose telephone number is (571)272-2199. The examiner can normally be reached on Monday - Friday, 8:00 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on 571-272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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2856

/R. M. M./
Examiner, Art Unit 2856
11 September 2009